

Vermont Department of Education
FORESTRY AND NATURAL RESOURCES
 (CIP: 03.0501)

Occupational Skills

The Student demonstrates the specified level of competency in occupational skills:

0	1	2	3	4
No Exposure	Introduced	Practiced	Entry-level	Competency

0 1 2 3 4

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|-------|----|---|
| 00000 | A. | Practice Work Place/Equipment Safety
(Vermont Standards: 3.3, 7.18) |
| 00000 | B. | Apply Surveying and Mapping Skills
(Vermont Standards: 7.6, 7.7) |
| 00000 | C. | Perform Forest Management Tasks
(Vermont Standards: 3.5, 3.10, 3.11, 3.12, 3.14, 3.15, 7.7, 7.10, 7.11, 7.12, 7.13, 7.17, 7.18) |
| 00000 | D. | Protect Forests from Pests, Diseases and Fire
(Vermont Standards: 3.5, 3.10, 3.11, 3.12, 3.14, 3.15, 7.7, 7.10, 7.11, 7.12, 7.13, 7.17, 7.18) |
| 00000 | E. | Harvest and Process Timber
(Vermont Standards: 3.5, 3.10, 3.11, 3.12, 3.14, 3.15, 7.7, 7.10, 7.11, 7.12, 7.13, 7.17, 7.18)) |
| 00000 | F. | Process Forest Products (e.g. Maple Syrup, Christmas Trees)
(Vermont Standards: 3.5, 3.10, 3.11, 3.12, 3.14, 3.15, 7.7, 7.10, 7.11, 7.12, 7.13, 7.17, 7.18) |
| 00000 | G. | Apply Best Management Practices with Land, Soil and Water Conservation
(Vermont Standards: 1.22, 3.5, 3.9, 3.10, 3.11, 3.12, 3.14, 3.15, 7.7, 7.10, 7.11, 7.12, 7.13, 7.14, 7.15, 7.17, 7.18) |
| 00000 | H. | Apply Wildlife and Outdoor Recreation Management Skills
(Vermont Standards: 7.2, 7.10, 7.11, 7.13, 7.15) |
| 00000 | I. | Operate and Maintain Forestry/Conservation Equipment
(Vermont Standards: 1.22, 3.3, 7.18) |
| 00000 | J. | Apply Business Management Skills
(Vermont Standards: 1.6, 1.22, 2.2, 2.11, 3.8, 5.18, 6.16, 7.6, 7.10, 7.17) |
| 00000 | K. | Apply Sales/Marketing Concepts
(Vermont Standards: 1.1, 2.14, 4.1, 4.2, 6.16, 6.17, 6.18, 6.19) |
| 00000 | L. | Apply Leadership Skills
(Vermont Standards: 1.5, 1.11, 1.13, 1.21, 2.2, 2.14, 3.5, 3.7, 3.10, 4.1, 4.2, 4.3, 4.4, 4.5, 5.5, 5.6, 5.7, 6.2, 6.3, 6.10, 6.12, 6.13, 6.15, 6.20, 6.21) |

DIRECTIONS

Evaluate the student by checking the appropriate box to indicate the degree of competency. The rating for each competency should reflect **employability readiness** rather than the grades given in class.

Rating Scale:

0 No Exposure

1 Introduced – the student has been exposed through non-participatory instruction (e.g. lecture, demonstration, field trip, video)

2 Practiced – the student can perform the task with direct supervision.

3 Entry-Level Competency – the student can perform the task with limited supervision and/or does not perform the task to standard (a typical entry-level performance expectation)

4 Competency – the student consistently performs task to standards with no supervision (on at least two occasions or at instructor's option).

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0 1 2 3 4

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B. Practice Work Place/Equipment Safety

- *B.001 Use proper clothing, shoes/boots, safety glasses, ear protection, breathing apparatus, shields, and other safety equipment.
- *B.002 Follow appropriate fire safety practices.
- *B.003 Follow appropriate first aid procedures.
- *B.004 Follow proper hazardous chemical/material control procedures, being aware of the "Right to Know" regulations.
- *B.005 Use tools and equipment listed in Appendix A safely (list to be developed by each technical center).

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C. Apply Surveying and Mapping Skills

- *C.001 Use scales, rulers, compasses, stereoscope, and other instruments.
- *C.002 Use topographic maps and aerial photographs.
- *C.003 Measure acreage and distance.
- *C.004 Read and interpret map symbols and scale.
- *C.005 Use surveying equipment such as a hand or staff compass, and transit or level (including state of the art surveying equipment).
- *C.006 Survey grades (Differential leveling).
- *C.007 Locate corners, boundary lines and benchmarks on a piece of land.

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D. Perform Forest Management Tasks

- *D.001 Estimate volume of standing trees with a Biltmore/International or Vermont stick, tally sheet, and volume tables.
- *D.002 Identify tree species (using twigs, bark, etc.)
- *D.003 Be familiar with the multi-use concept of forest management.
- *D.004 Use volume scale, sticks, tally sheets, volume table, prism (basal area), measuring tapes, pacing, compass, and increment borers.

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E. Protect Forests From Pests, Diseases and Fire

- *E.001 Follow "Green Card" (U.S. Forest Service) prescribed tasks.
- *E.002 Identify common insects, woodland diseases, and animal damage.

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F. Harvest and Process Timber

- *F.001 Demonstrate knowledge of the selection of harvesting systems, according to state standards (Best Management Practices).

- *F.002 Identify logs and lumber.
- *F.003 Perform safe felling procedures.
- *F.004 Measure, grade, and buck tree length logs, according to industry standards.
- *F.005 Tally and scale lumber, according to industry standards (NELMA).
- *F.006 Perform safe skidding procedures.
- *F.007 Operate chain saws in a safe manner to manufacturers' specifications.

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G. Process Forest Products (e.g. Maple Syrup, Christmas Trees)

- *G.001 Determine product markets.
- *G.002 Apply quality standards.
- *G.003 Demonstrate processing best practices.

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H. Apply Best Management Practices with Land, Soil, and Water Conservation

- *H.001 Be familiar with types of soil erosion.
- *H.002 Be familiar with proven methods for preventing soil erosion (water bars, check dams, silt fencing, etc.)
- *H.003 Be familiar with current forest practices laws and acceptable management practices to control soil erosion.
- *H.004 Be familiar with acceptable management practices for maintaining water quality on logging jobs.
- *H.005 Determine the soil capability for a sample land plot.

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I. Apply Wildlife and Outdoor Recreation Management Skills

- I.001 Identify wildlife management principles.
- I.002 Identify recreational area environmental management principles.

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J. Operate and Maintain Forestry/Conservation Equipment

- *J.001 Safely maintain the proper hand and power tools for specific jobs.
- *J.002 Service gasoline (2 and 4 cycle) and diesel engines to manufacturer's specifications.
- *J.003 Maintain chain saws in a safe manner to manufacturer's specifications.
- *J.004 Build, maintain and/or repair structures, following proper construction/maintenance procedures.
- *J.005 Safely operate and maintain bulldozer, backhoe, dump truck, trailer, skidders,.....
- *J.006 Interpret blueprints/project plans for use with heavy equipment (Plan and Profile).
- *J.007 Operate a rubber-tired skidder and/or bulldozer safely.

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K. Apply Business Management Skills

- *K.001 Develop a business plan.
- *K.002 Present a business plan.
- *K.003 Investigate and identify sources of credit.
- *K.004 Select and maintain financial and production record keeping systems.
- *K.005 Prepare a cash flow statement.
- *K.006 Complete a profit and loss statement.
- *K.007 Balance a bank statement (reconciliation).
- *K.008 Review sources and kinds of business insurance.
- *K.009 Identify major elements in contract and lease agreements.
- *K.010 Prepare and negotiate bids.
- *K.011 Identify sources of forestry/natural resource information and assistance.
- *K.012 Maintain a file of current technical information.
- *K.013 Participate in associations and societies related to forestry/natural resources.
- *K.014 Apply computer technology.

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L. Apply Sales/Marketing Concepts

- *L.001 Identify sales methods.
- *L.002 Prepare a marketing plan.

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M. Apply Leadership Skills

- *M.001 Participate in state/regional/national competitive events.
- *M.002 Practice and refine problem-solving skills in groups.

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- *M.003 Develop personal management skills.
- *M.004 Employ interpersonal, negotiating, and team building skills.
- *M.005 Influence others to act in a prescribed manner/move in a given direction.
- *M.006 Demonstrate civic/social responsibility.